REVISIONS

LT	DESCRIPTION	DATE	APPROVED
A	Title clarification and part number corrections.	28 Mar 1985	Steven Searcy
B	Changed manufacturer's eligibility.	23 Mar 1987	Steven Searcy
C	Changes in accordance with NOR 5945-R001-96.	13 Feb 1996	David E. Moore
D	Cancel Document	16 Jun 1998	David E. Moore

Notice of Cancellation

DESC Drawing 84003, dated 28 Sept 1984 is hereby canceled. Use MIL-R-83536/1.

Prepared in accordance with MIL-STD-100

Selected item drawing

REV																						
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REV STATUS OF PAGES	**REV**			D																		
	PAGES			1	2	3	4	5	6	7	8	9	10	11	12	13	14					

PMIC N/A	**PREPARED BY** Richard A. Yannitti	**DEFENSE SUPPLY CENTER, COLUMBUS** **COLUMBUS, OH**
Original date of drawing 28 September 1984	**CHECKED BY** Max E. Lewis	**TITLE** **RELAYS, ELECTROMAGNETIC, PERMANENT MAGNET DRIVE, 2 PDT, (SIMILAR TO MIL-R-6106/27 EXCEPT FOR 6, 12, AND 48V DC COILS)**
	APPROVED BY Steven B. Searcy	
	SIZE A / **CODE IDENT. NO.** 14933	**DWG NO.** 84003
	REV D	**PAGE** 1 **OF** 14

AMSC N/A

5945-E086

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

NOTICE OF REVISION (NOR)

(See MIL-STD-480 for instructions)

This revision described below has been authorized for the document listed.

DATE (YYMMDD)	Form Approved OMB No. 0704-0188
96-02-13	

1. ORIGINATOR NAME AND ADDRESS	2. CAGE CODE	3. NOR NO.
Defense Electronics Supply Center Dayton, Ohio 45444-5674	14933	5945-R001-96
	4. CAGE CODE:	5. DOCUMENT NO.
	14933	84003

6. TITLE OF DOCUMENT	7. REVISION LETTER	
RELAYS, ELECTROMAGNETIC, PERMANENT MAGNET DRIVE, 2PDT, (SIMILAR TO MIL-R-6106/27 EXCEPT FOR 6, 12, AND 48 V DC COILS)	(Current) B	(New) C
	8. ECP NO.	
	NONE	

9. CONFIGURATION ITEM (OR SYSTEM) TO WHICH ECP APPLIES

10. DESCRIPTION OF REVISION

Page 1: Revisions letter column; add "C".
Revisions description column; add "Changes in accordance with NOR 5945-R001-96".
Revisions date column; add "96-02-13".
Revision level block; change to "C".
Rev status of pages; For page 12, change to "C".

Page 12: Paragraph 4.2.1, delete "For seal test, the radioisotope procedure shall be performed."

11. THIS SECTION FOR GOVERNMENT USE ONLY

a. CHECK ONE

[X] EXISTING DOCUMENT SUPPLEMENTED BY THIS NOR MAY BE USED IN MANUFACTURE.

[ ] REVISED DOCUMENT MUST BE RECEIVED BEFORE MANUFACTURER MAY INCORPORATE THIS CHANGE.

[ ] CUSTODIAN OF MASTER DOCUMENT SHALL MAKE ABOVE REVISION AND FURNISH REVISED DOCUMENT TO:

b. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT	SIGNATURE AND TITLE	DATE (YYMMDD)
DESC-ELDM	Daniel S. Moore	96-02-13
12. ACTIVITY ACCOMPLISHING REVISION	REVISION COMPLETED (Signature)	DATE (YYMMDD)
DESC-ELDM	B. Boutte	96-02-13

DD Form 1695, JUL 88 Previous editions are obsolete.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Title clarification and part number corrections.	28 Mar 85	[signature]
B	Changed manufacturer's eligibility.	23MAR87	[signature]

Prepared in accordance with DOD-STD-100

Selected item drawing

REV STATUS	REV	B			B								B	B	B
OF PAGES	PAGES	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Original date of drawing:
28 September 1984

PREPARED BY [signature]

CHECKED BY [signature]

APPROVED BY [signature]

DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO

TITLE RELAYS, ELECTROMAGNETIC PERMANENT MAGNET DRIVE, 2PDT, (SIMILAR TO MIL-R-6106/27 EXCEPT FOR 6, 12, AND 48 V DC COILS)

SIZE	CODE IDENT. NO.	DWG NO.
A	14933	84003

REV B

DESC FORM 144 MAR 76 AMSC N/A 5945-E012

1. SCOPE

1.1 Scope. This drawing describes the requirements for a hermetically sealed electromechanical relay supplied to the requirements of a type I ER, established reliability, version of MIL-R-6106/27, except as noted herein.

1.2 Part number. The complete part number shall be as shown in the following example:

84003 -001

84003 — Drawing number

-001 — Dash number (see table I)

2. APPLICABLE DOCUMENTS

2.1 Government specifications and standards. Unless otherwise specified, the following specifications and standards, of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATION

MILITARY

MIL-R-6106 - Relays, Electromagnetic (Including Established Reliability (ER) Types), General Specification For.

MIL-R-6106/27 - Relays, Electromagnetic (Including Established Reliability (ER) Types), Permanent Magnet Drive, Low Level to 5 Amperes, 2PDT, All Welded, Hermetically Sealed.

(Copies of specifications, standards, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing shall take precedence.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with MIL-R-6106, MIL-R-6106/27, and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-R-6106, MIL-R-6106/27, and herein (see figure 1).

3.3 Coil data and operational data. See tables II and III.

3.3.1 Operate time. 4 milliseconds maximum with rated coil voltage.

3.3.2 Release time. 4 milliseconds maximum from rated coil voltage.

3.3.3 Contact bounce. .5 millisecond maximum.

3.3.3.1 Break bounce normally open contacts only. .1 millisecond maximum.

3.4 Physical. Physical requirements of the relay shall be as specified in MIL-R-6106/27 and herein (see table I).

3.4.1 Dimension and configuration. See figure 1.

TABLE I. Mechanical and physical characteristics.

Dash numbers 84003-			Terminal type	Mounting configuration
Coil voltage (V dc)				
6	12	43		
001	002	003	Solder pin	A
004	005	006	Solder pin	B
007	008	009	Solder hook	B
010	011	012	Socket pin	B
013	014	015	Solder pin	C
016	017	018	Solder hook	C
019	020	021	90° wire lead	C

TABLE II. Operating characteristics.

Coil voltage (V dc)	Coil data								
	Nominal		Max		Max pickup voltage			Dropout voltage 1/	Hold voltage 1/
	Volts	Res. ±10% @ 25°C	Volts	Amp.	Normal 1/	High temp test	Cont current test		
6	6	25	7.3	.325	4.5	5.0	5.7	.5	2
12	12	125	14.5	0.129	9.0	9.9	11.25	0.75	4.5
48	48	1500	50	.035	36.0	38.0	42.0	.3	12

1/ Over temperature range.

TABLE III. Rated contact load endurance (amperes per pole) case grounded

Type of load	(Endurance) life operating cycles x 10^3	28 V dc Main NO	28 V dc Main NC	115 V ac, 1 phase Main 400 Hz	115/200 V ac, 3 phase Main 400 Hz	See appropriate notes
Resistive	100	5	5	5	5	
Inductive	100	--	--	--	--	
Inductive	20	3	3	5	5	
Motor	100	2	2	3	3	
Lamp	100	1	1	1	1	
Transfer load	As applicable	--	--	--	--	1/
Mechanical life reduced current	400	1.25	1.25	1.25	1.25	
Int. current		Applicable per specification				
Low level	100	Applicable per specification				2/ 3/ 4/
Multipole loads	As applicable	See note				5/

1/ Transfer load indicates relay suitable for transfer between asychronous ac power supplies at rating indicated.

2/ For low level the following shall apply:

a. During endurance and operational reliability testing, contact load shall be 10 to 50 microamperes; 10 to 50 millivolt open circuit voltage, 100 ohm maximum contact resistance.

b. Static contact resistance shall be performed at 50 mA maximum, 50 mV maximum.

3/ The alternate low level test of operational reliability shall be used.

4/ For group A contact voltage drop test, high level testing shall be performed first, followed by low level testing. The contacts shall not make or break the high level load.

5/ Relay shall be capable of switching low level while switching any of the other rated loads on adjacent contacts.

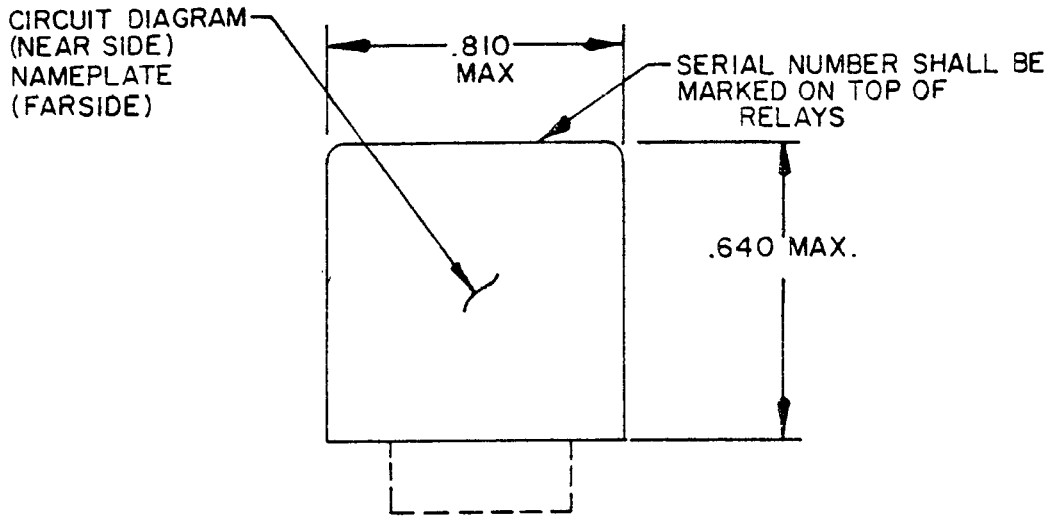
3.5 Environmental characteristics. Relays shall meet all environmental requirements as specified in MIL-R-6106/27 and herein.

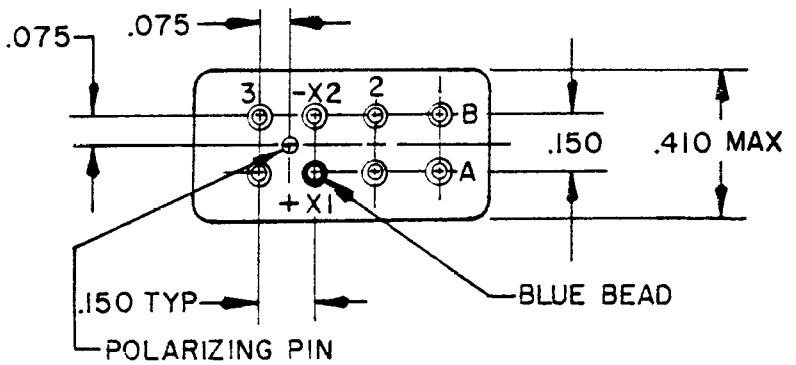
3.5.1 Electrical characteristics. Relays shall meet all electrical characteristics as specified in MIL-R-6106/27 and herein.

3.6 Marking. Marking shall be in accordance with MIL-R-6106 except the part number shall be in accordance with 1.2 herein. The "M6106/27-XXXM" part number shall not be used.

3.7 Quality assurance requirements. Relays furnished under this drawing shall have been subjected to, and passed all the requirements, tests, and inspections detailed herein.

3.7.1 Quality conformance inspection. Quality conformance inspection shall be in accordance with MIL-R-6106 and 4.2 herein.

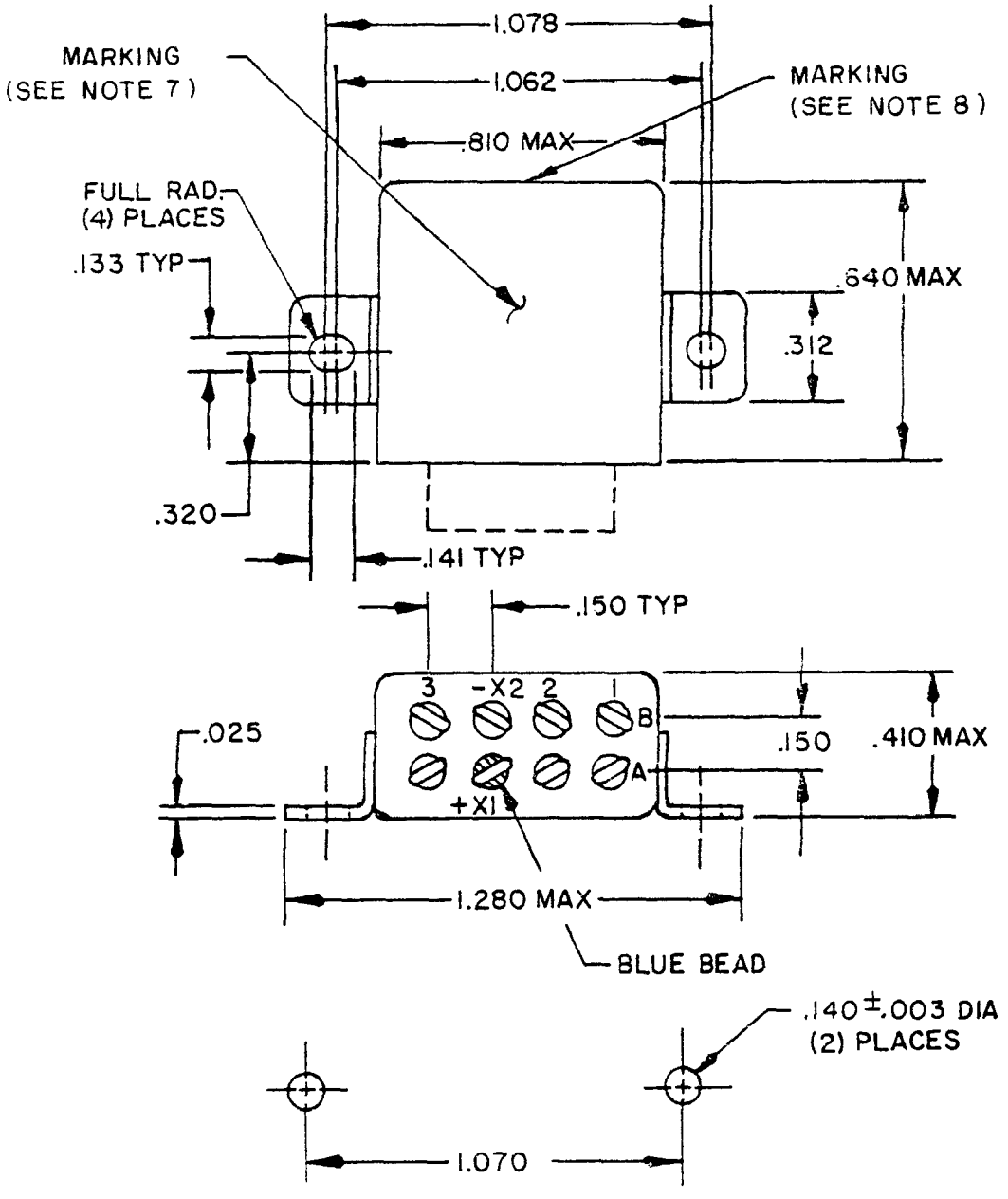




CONFIGURATION A

FIGURE 1. Outline drawing (for details see table I).

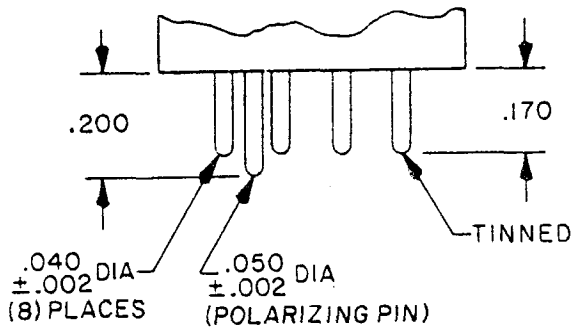
DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CODE IDENT. NO. 14933	DWG NO. 84003
		REV	PAGE 5



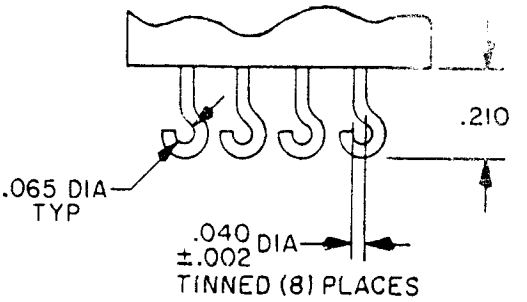
MOUNTING HOLE LAYOUT

CONFIGURATION C

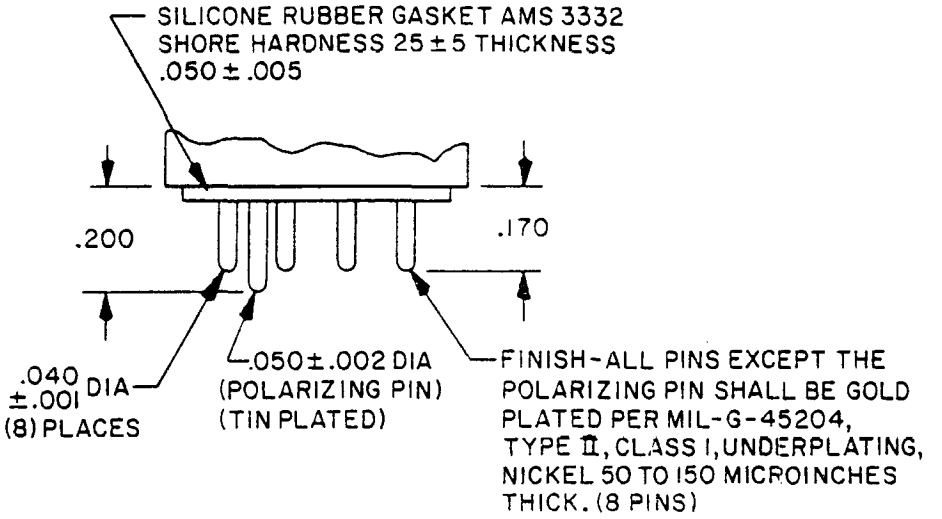
FIGURE 1. Outline drawing (for details see table I) - Continued.



SOLDER PIN



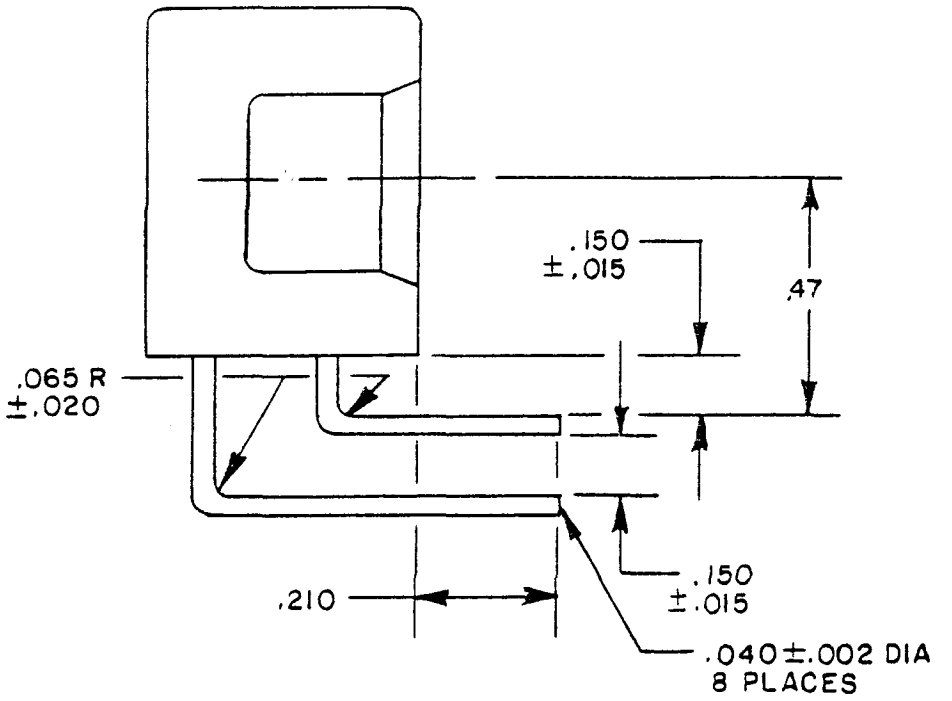
SOLDER HOOK



SOCKET PIN

TERMINALS

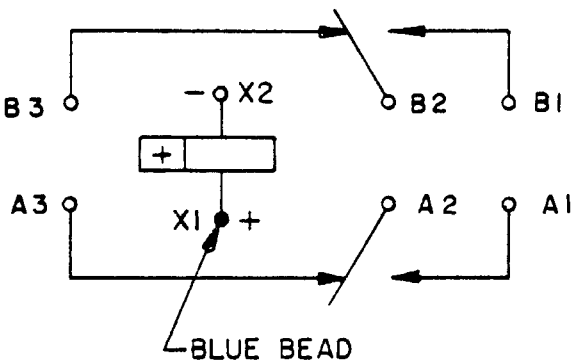
FIGURE 1. Outline drawing (for details see table I) - Continued.



90° WIRE LEAD

TERMINALS

FIGURE 1. Outline drawing (for details see table I) - Continued.



CIRCUIT DIAGRAM

FIGURE 1. Outline drawing (for details see table I) - Continued.

Inches	mm	Inches	mm	Inches	mm
.001	0.03	.110	2.79	.320	8.13
.002	0.05	.125	3.18	.410	10.41
.003	0.08	.133	3.38	.450	11.43
.005	0.13	.140	3.56	.47	11.94
.015	0.38	.141	3.58	.640	16.26
.020	0.51	.150	3.81	.810	20.57
.025	0.64	.156	3.96	.850	21.59
.031	0.79	.170	4.32	1.062	26.97
.040	1.02	.200	5.08	1.070	27.18
.050	1.27	.210	5.33	1.078	27.38
.065	1.65	.225	5.72	1.200	32.51
.075	1.90	.312	7.92		

NOTES:
1. There shall be affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.
2. Metric equivalents are given for general information only.
3. Dimensions are in inches.
4. Unless otherwise specified, tolerance is ±.010 (0.25 mm).
5. These relays are polarized monostable.
6. Applicable to configuration C only. The circuit diagram, manufacturer's part number, and the DESC drawing number shall be marked on the near side. The remaining portion of the nameplate data shall be marked on the far side.
7. Applicable to configuration C only. Relays shall be marked with the manufacturers' name or source code, date code, and the serial number. Marking shall be with the bottom of the print adjacent to the near side.
8. Permanent magnet drive consists of a permanent magnet with its flux path switched and combined with the electro-magnet flux.

FIGURE 1. Outline drawing (for details see table I) - Continued.

3.8 Certification as an approved source of supply. In order to be listed as an approved source of supply for relays manufactured to this drawing, a manufacturer shall:

a. Agree to make available to DESC, upon request, all pertinent test data on its production of the subject part, including, but not limited to, test data in accordance with the qualification inspection table of MIL-R-6106, type I ER.

b. Provide to DESC-EMD or its designated agent, upon request, free of charge and without obligation, a current production sample from its production of the subject part.

c. Meet one of the following criteria:

(1) Currently possess listing on qualified product list QPL-6106 for at least one part.

(2) Be in current production of the subject part.

3.9 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply (see 6.6 and 6.7).

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-R-6106, except as modified herein.

4.2 Qualification conformance inspection. Quality conformance inspection shall be in accordance with Group A listing of MIL-R-6106. Group A testing shall be performed on each inspection lot and manufacturers shall keep lot records for 3 years (minimum), monitor for compliance to the prescribed procedures, and observe that satisfactory manufacturing conditions and records on lots are maintained for these relays.

4.2.1 Group A inspection. Group A inspection shall consist of all tests specified in MIL-R-6106 for failure rate level "M". For seal test, the radioisotope procedure shall be performed.

4.3 Inspection of packaging. Inspection of packaging shall be in accordance with MIL-R-6106.

5. PACKAGING.

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-R-6106.

6. NOTES

6.1 Notes. Only definitions of the notes specified in MIL-R-6106 shall apply to this drawing.

6.2 Intended use. Relays conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application. This drawing is intended exclusively to prevent the proliferation of unnecessary duplicate specifications, drawings, and stock catalog listings. When a military specification exists and the product covered by this drawing has been qualified for listing on QPL-6106, this drawing will become inactive for new design. The QPL-6106 product shall be the preferred item for all applications.

6.3 Ordering data. The contract or purchase order should specify the following:

a. Complete part number (see 1.2).

b. One copy of the quality conformance inspections as required in 4.2, to be shipped with each lot.

c. Requirements for packaging and packing.

6.4 Replaceability. Relays covered by this drawing will replace the same generic device covered by a contractor prepared specification or drawing.

6.5 Comments. Comments on this drawing should be directed to DESC-EMD, Dayton, Ohio 45444, or telephone 513-296-6184.

6.6 Submission of certificate of compliance. The certificate of compliance submitted to DESC-EMD, prior to listing as an approved source, shall state the manufacturer's product meets the requirements herein.

6.7 Approved sources of supply. Approved sources of supply are listed herein. Additional sources will be added as they become available. The vendors listed herein have agreed to this drawing and a certificate of compliance (see 3.9) has been submitted to DESC-EMD.

DESC drawing part number 84003-	Vendor CAGE number	Vendor similar part number
001	99699	E205-1115
002	"	E205-1116
003	"	E205-1117
004	"	E205-1118
005	"	E205-1119
006	"	E205-1120
007	"	E205-1121
008	"	E205-1122
009	"	E205-1123
010	"	E205-1124
011	"	E205-1125
012	"	E205-1126
013	"	E205-1127
014	"	E205-1128
015	"	E205-1129
016	"	E205-1130
017	"	E205-1131
018	"	E205-1132
019	"	E205-1133
020	"	E205-1134
021	"	E205-1135
001	35344	X-A1C-106
002	"	X-A1B-107
003	"	X-A1M-108
004	"	X-01C-106
005	"	X-01B-107
006	"	X-01M-108
007	"	X-02C-106
008	"	X-02B-107
009	"	X-02M-108
010	"	X-04C-106
011	"	X-04B-107
012	"	X-04M-108
013	"	X-J1C-106
014	"	X-J1B-107
015	"	X-J1M-108
015	"	X-J2C-106

DESC drawing part number 84003-	Vendor CAGE number	Vendor similar part number
017	35344	X-J2B-107
018	"	X-J2M-108
019	"	X-J9C-106
020	"	X-J9B-107
021	"	X-J9M-108
001	78290	FCB-210-126
002	"	FCB-210-127
003	"	FCB-210-128
004	"	FCB-210-129
005	"	FCB-210-130
006	"	FCB-210-131
007	"	FCB-210-132
008	"	FCB-210-133
009	"	FCB-210-134
010	"	FCB-210-135
011	"	FCB-210-136
012	"	FCB-210-137
013	"	FCB-210-138
014	"	FCB-210-139
015	"	FCB-210-140
016	"	FCB-210-141
017	"	FCB-210-142
018	"	FCB-210-143
019	"	FCB-210-144
020	"	FCB-210-145
021	"	FCB-210-146

Vendor CAGE number	Vendor name and address
99699	Deutsch Relays, Inc. 65 Daly Road East Northport, NY 11731
35344	Leach Corporation, Relay Division 5915 Avalon Boulevard Los Angeles, CA 90003
78290	Struthers-Dunn, Inc. Pitman, New Jersey 08071